

PROCEEDINGS OF THE NEW YORK ENTOMOLOGICAL SOCIETY

MEETING OF OCTOBER 7, 1941

Former President Ruekes in the chair, twenty members and visitors present.

Mr. J. B. Ziegler, Jr., 1250 Fulton Street, Rahway, New Jersey, was proposed for membership by Mr. Comstock.

It was moved that a letter of cheer be sent to President Kisliuk who, because of illness, was not able to attend the meetings for the rest of this year.

Mr. Comstock and Mr. Davis spoke of Mr. Frederick Lemmer of Lakehurst, New Jersey, who died last week.

Among the visitors present were Mr. George C. Furness of the National Carbon Company, and Mr. Charles T. Ramsden from Santiago de Cuba.

There were many reports of summer collecting experiences. Mr. Davis showed a box of Brood XV of the seventeen-year locust. This is one of the smallest broods, but he had specimens of the 1890, 1907, 1929 and 1941 emergences. Dr. and Mrs. Argo were in the state of Washington during the summer, and Dr. and Mrs. Klots were in Arizona and New Mexico. There were several interesting records of Lepidoptera taken by members; these will be published elsewhere in the *JOURNAL*.

The meeting closed with a discussion of insect migration.

MEETING OF OCTOBER 21, 1941

Vice-president Weiss in the chair, twenty-five members and visitors present.

Mr. J. B. Ziegler was elected to membership.

Among the visitors present were Mr. and Mrs. Lawrence S. Dillon of the Reading Public Museum, and Mr. Andrew J. Mutchler.

Mr. Englehardt, mentioned two ways in which the Society could meet the pending increase in cost of publication—either by cutting down on the size of the *JOURNAL* or by raising the subscription price. He suggested that the New York and the Brooklyn Entomological Societies get together and take similar action.

He also spoke of two forthcoming papers in "Entomologica Americana," one by Mr. Helfer on buprestid beetles and one by Dr. Bequaert on bot-flies.

Mr. George G. Becker, Senior Entomologist in charge of the enforcement of plant quarantine, told of the work being done at the Plant Quarantine Inspection House at Hoboken. The methods of inspection and fumigation of plants were described and illustrated.

MEETING OF NOVEMBER 18, 1941

President Kisliuk in the chair, thirty members and visitors present.

In regard to the probable increase in the price of publication, Mr. Englehardt reported that the Brooklyn Entomological Society had raised the price of their *Journal* fifty cents a year.

Dr. Stanley Bromley of the Bartlett Tree Research Laboratories, Stamford, Connecticut, spoke on the Shade Tree Insects of 1941, illustrating his talk with kodachrome slides. An abstract is appended.

THE SHADE TREE INSECTS OF 1941

The Japanese Beetle, *Popillia japonica* Neum., was given a prominent position in Dr. Bromley's discussion where it was pointed out that this insect was on the increase in Connecticut. While the new milky disease appears promising, to date no natural agency of control has had appreciable effect in reducing the numbers of the Japanese beetle, although locally certain birds and mammals may be influential. Crows, skunks and moles are of the greatest value in this respect, while grackles, starlings, robins and pheasants all feed on beetle grubs. To secure adequate control, however, chemical means must be employed. Dr. Bromley pointed out that the beetle feeds in the north throughout the summer until the killing frosts of mid-October. There appears to be no Japanese Beetle "Cycle" such as characterizes the tent caterpillar.

Coleopterous borers, particularly bark beetles have increased of late in many places and this increase has been traced to favorable breeding conditions resulting from tree damage by the hurricane of 1938 and the ice storm of 1940 as well as other climatic or meteorological factors.

The European elm bark beetle (*Scolytus multistriatus* Marsh.), usually considered secondary, has by sheer force of numbers become a primary killer of elm wood independent of the Dutch Elm Disease.

The elm leaf beetle (*Galerucella xanthomelaena*) was more abundant and destructive in the northeast in 1941 than at any time since 1910.

The turpentine beetles (*Dendroctonus terebrans* Oliv. and *D. valens* Lec.) were more abundant and destructive than ever before to ornamental pitch pines on Cape Cod during 1941. Dr. Bromley also described tests that were conducted for the control of the relatively new but increasingly important Scotch pine weevil, *Hylobius radicis* Buchanan.

MEETING OF DECEMBER 2, 1941

Vice-president Weiss in the chair, forty-five members and visitors present. Dr. Herbert Dalmat of Iowa State College, Ames, Iowa, was proposed for membership by Dr. Spieth.

Mr. Weiss read a letter from Science Press in which they regretted that printing prices would be increased for 1942. The question of whether to increase our subscription price for the JOURNAL or to decrease the number of pages was referred to the Executive Committee.

Mr. Ackermann of the Westinghouse Laboratory showed his method of mounting Lepidoptera between sheets of cellulose acetate.

Dr. A. Glenn Richards, Jr., of the University of Pennsylvania, spoke on "Electron Microscope Studies of Insect Cuticle and Tracheæ with a discussion of the application of electron optics to Entomology," illustrating his talk with lantern slides made from electron micrographs he had taken. An abstract is appended.

ELECTRON MICROSCOPE STUDIES OF INSECT CUTICLE

Electron micrographs of sections of cockroach cuticle show spiral pore canals, averaging 0.15 microns diameter, traversing the endo- and exocuticles.

These two layers are made up of laminae consisting of alternate layers of chitin and a denser chitin-protein complex. The laminar structure disappears when the protein is removed chemically; these data agree with and amplify the x-ray diffraction studies of others. The epicuticle is approximately two microns thick; it splits into two layers in hot HNO_3 ; the outer layer is colorless, of the order of 0.01 microns thick, and decomposes in the electron beam; the inner layer is amber-colored and seemingly homogeneous. These two layers form a continuous sheet without resolvable structure or holes.

On the other hand micrographs of cuticle of mosquito larvæ show no pore canals. And the epicuticle, treated with hot HNO_3 , remains as a single layer and is resistant to the electron beam. We suggest, therefore, that different compositions are indicated for the epicuticle of these two insects.

The relation of these findings to cuticle permeability was discussed briefly. Oils do not penetrate via the pore canals and so must penetrate through the chitin-protein framework.

Micrographs of insect tracheæ and butterfly scales were shown to illustrate the minute anatomical details to be found in insect material. Details certainly reach magnitudes of the order of 0.01 microns. The membrane lining tracheæ is only about 0.01 microns thick. Butterfly scales contain numerous minute details previously unsuspected.—A. GLENN RICHARDS, JR.

MEETING OF DECEMBER 16, 1941

Vice-president Weiss in the chair, twenty-three members and visitors present.

The report of the Executive Committee, (1) that the JOURNAL be limited to about eighty pages per issue for the first part of next year increasing the number as finances permit; (2) that members of the society who have not paid their dues for two years be dropped from membership and in order to be reinstated must pay back dues in full; and (3) that the JOURNAL not be sent to anyone more than one year in arrears, was adopted.

Dr. Herbert Dalmat was elected to membership.

Mr. Weiss appointed Mr. Sherman, Mr. Teale and Mr. Becker members of the Nominating Committee.

Mr. Comstock spoke on the Monarch Butterfly—its range, taxonomy and subspecies. An abstract is appended.

THE MONARCH BUTTERFLY

The Monarch butterfly is widely distributed in the Americas where it develops a number of subspecies, *plexippus* in the north, *megalippe* in the south, with *erippus* in southeastern Brazil and what is known as ab. *fumosus* in considerable numbers on Western Canada. In the Antilles *plexippus* from the north appears in normal form as far as Puerto Rico (apparently migrants) and *megalippe* comes in from the south through the Lesser Antilles. However, in Puerto Rico there is a distinct and apparently sedentary subspecies *portoricensis* recently described by Austin H. Clark and in the Virgin Islands there is the subspecies *leucogynæ* Butler. Although *plexippus* is so extensively modified in the American continental and insular regions, it has spread extensively without modification throughout the Pacific Islands even to Australia. It has been recorded also from Iceland, the British Isles and Europe.

ANNETTE L. BACON, *Secretary.*